

REMARKS

Applicant appreciates the telephone conference with Examiner Monbleau on July 25, 2002. As discussed, Applicant's Second Preliminary Amendment filed July 1, 2002 crossed in the mail with Examiner's July 2, 2002 Office Action. Applicant's July 1, 2002 Second Preliminary Amendment had added new claims 120-158. To focus on the claims originally before the Examiner, Applicant cancels without prejudice or disclaimer Claims 120-158. Claims 113 and 116 have also been canceled without prejudice or disclaimer.

Applicant notes that the originally filed claims of the parent to this Divisional Application contained Claims 1-94, and that Applicant's First Preliminary Amendment (filed December 19, 2001) incorrectly began numbering the pending claims at 110, instead of 95. The Examiner has noted this error, correctly referring to the pending claims as beginning with Claim 95. Accordingly, Applicant has amended the numbering of each claim so that the claims begin at Claim 95. As a result, the pending claims are Claims 95-104 (exclusive of Claim 98 (originally numbered as Claim 113) and Claim 101 (originally numbered as Claim 116), which have been canceled without prejudice or disclaimer). All references to claim numbering throughout the remainder of this document will refer to the corrected claim numbering resulting from this amendment. Applicant notes that various ones of Claims 95-104 have been amended to correct typographical errors and to, in some cases, remove unnecessary limitations.

I. Claim Objections.

Claim 96 was rejected for its preamble. Claim 96 has been amended to correct the preamble of that claim. Applicants respectfully submit that amended Claim 96 is now in condition for allowance.

II. Non-Statutory Double Patenting Rejections.

Claims 95-104 are currently subject to a non-statutory double patenting rejection in light of U.S. Patent No. 6,052,393. ~~Claims 95-98 are also subject to a non-statutory~~ double patenting rejection in light of U.S. Patent No. 6,356,384. The Examiner has noted that a terminal disclaimer in compliance with 37 C.F.R. 1.321(c) could be used to overcome these rejections. Without addressing the veracity of the Examiner's non-statutory double patenting rejections and solely for the purpose of expediting the issuance

of this Application, Applicant will consider filing an appropriate terminal disclaimer upon indication that the claims are otherwise in condition for allowance.

III. Applicant Requests Consideration of Applicant's Supplemental Information Disclosure Statements Filed on March 12, 2001, July 12, 2002, and July 25, 2002.

Applicant notes with appreciation the Examiner's consideration of Applicant's Information Disclosure Statement filed on December 19, 2002. Applicant filed a Supplemental Information Disclosure Statement on March 12, 2002, prior to the mailing of the First Office Action. Applicant respectfully requests consideration of the information disclosed in that Supplemental Information Disclosure Statement.

Applicant also filed a Second Supplemental Information Disclosure Statement on July 12, 2002. Although Applicant did not include a check for the \$180 fee set forth in 37 C.F.R. 1.17(p) (because Applicant believed at that time that the Second Supplemental Information Disclosure Statement was filed before the mailing of the First Office Action), Applicant gave instructions to debit Applicant's counsel's deposit account if any fee was determined due. Applicant believes, therefore, that upon debiting the deposit account, the Second Supplemental Information Disclosure Statement is in order. Applicant respectfully requests consideration of the information disclosed in the Second Supplemental Information Disclosure Statement.

Among the information disclosed in the Second Supplemental Information Disclosure Statement is a copy of Applicant's copending Application Serial No. 09/694,858 (the "'858" Application"). The '858 Application, at least at one time, claimed subject matter similar to the subject matter currently claimed in this Application. The claims of the '858 Application were initially rejected under 35 U.S.C. §103 over U.S. Patent 6,049,417 issued to Srivastava ("*Srivastava*") in combination with U.S. Patent 6,205,268 B1 issued to Chraplyvy ("*Chraplyvy*"-'268") or U.S. Patent 4,923,291 issued to Edagawa ("*Edagawa*") and in combination with U.S. Patent No. 4,740,974 issued to Byron ("*Byron*"). Copies of these references are being provided in Applicant's Third Supplemental Information Disclosure Statement. Applicant respectfully requests

consideration of the information disclosed in its Third Supplemental Information Disclosure Statement.

Applicant respectfully submits that all claims pending in this Application are patentable over *Srivastava*, *Chraplyvy '268*, *Edagawa*, and *Byron* taken separately or in any combination. For the Examiner's convenience and to expedite prosecution of this case to issuance, Applicant provides below example distinctions between Applicant's pending claims and the *Srivastava*, *Chraplyvy '268*, *Edagawa*, and *Byron* references.

A. Independent Claim 95

Independent Claim 95 recites a method of producing an amplified broadband optical signal including "dividing an optical signal at a predetermined wavelength into a first beam having a wavelength less than the predetermined wavelength and a second beam having a wavelength greater than said predetermined wavelength." The method also includes "directing said first beam to a Raman amplifier" and "directing said second beam to a rare earth doped amplifier."

Srivastava discloses a system that implements either parallel combinations of Erbium doped amplifiers, or parallel combinations of semiconductor amplifiers. *Srivastava* contains no disclosure of Raman amplifiers, let alone a parallel combination of a Raman amplifier and a rare earth doped amplifier.

Edagawa discloses a polarization beam splitter that sends the same wavelengths (differently polarized portions in each direction) to each of a pair of amplifiers coupled in parallel. *Edagawa* fails to teach or suggest "dividing an optical signal at a predetermined wavelength into a first beam having a wavelength less than the predetermined wavelength and a second beam having a wavelength greater than said predetermined wavelength." Moreover, in *Edagawa* either both amplifiers in *Edagawa*'s pair of amplifiers are Erbium amplifiers or both amplifiers in the pair are Raman amplifiers. ~~*Edagawa*, therefore, also~~ fails to teach or suggest "directing said first beam to a Raman amplifier" and "directing said second beam to a rare earth doped amplifier" as recited in Claim 95.

Srivastava requires that each of its amplifiers be driven by the same pump wavelength. See e.g., Col. 4, Ins. 10-11 and 31. As discussed above, in addition to technical differences, *Chraplyvy* '264 does not qualify as prior art against this Application. Moreover, neither *Chraplyvy* '264 nor any of the prior patents upon which it relies discloses a "splitter splitting an optical signal into at least a first wavelength and a second wavelength," combined with "a first amplifier coupled to the splitter" and "a second amplifier coupled to the splitter," regardless of pump wavelength. *Edagawa* does not discuss pump wavelengths, and lacks any teaching or suggestion of a "splitter splitting an optical signal into at least a first wavelength and a second wavelength." (*Edagawa's* splitter is not a wavelength splitter, but a polarization beam splitter). *Byron* also lacks several features of this claim. Applicant respectfully requests favorable action with respect to Claim 102.

D. Independent Claim 103

Independent Claim 103 recites "a broadband amplifier, comprising a splitter operable to be coupled to an input fiber, the splitter splitting an optical signal into at least a first wavelength and a second wavelength." Claim 103 also recites "a distributed gain medium coupled to the splitter, the distributed gain medium providing gain through a third order non-linearity" and "one or more rare-earth doped amplifiers coupled to the splitter."

For at least reasons similar to those discussed above with respect to Claim 95, neither *Srivastava*, *Chraplyvy* '268, *Edagawa*, nor *Byron* teaches or suggests a distributed gain medium providing gain through a third order nonlinearity and an Erbium amplifier coupled to a splitter that "split[s] an optical signal into at least a first wavelength and a second wavelength." Applicant respectfully requests favorable action with respect to Claim 103 and all claims depending therefrom.

With respect to *Chraplyvy '268*, in addition to technical differences between the claims of this Application and *Chraplyvy '268*, *Chraplyvy '268* does not qualify as prior art against this Application, at least because it was filed after the priority date of this Application (*Chraplyvy '268* was filed February 19, 1999, while this Application enjoys a priority date of at least July 7, 1998, or earlier). Although *Chraplyvy '268* makes a priority claim to earlier filed cases, those earlier filed cases contain no disclosure of Raman amplifiers. (See, e.g., U.S. Patent 5,587,830 to which *Chraplyvy '268* claims priority).

Byron also fails to teach or suggest these claim elements. Applicant respectfully requests favorable action with respect to Claim 95 and all claims depending therefrom.

B. Independent Claim 99

Independent Claim 99 recites "a broadband amplifier, comprising a splitter operable to be coupled to an input fiber, the splitter splitting an optical signal into at least a first wavelength and a second wavelength." Claim 99 also recites "one or more Raman amplifiers coupled to the splitter" and "one or more rare-earth doped optical amplifiers coupled to the splitter."

As discussed above, neither *Srivastava*, *Chraplyvy '268*, *Edagawa*, nor *Byron* teaches or suggests a Raman amplifier and an Erbium amplifier coupled to a splitter that "split[s] an optical signal into at least a first wavelength and a second wavelength." Applicant respectfully requests favorable action with respect to Claim 199 and all claims depending therefrom.

C. Independent Claim 102

Independent Claim 102 recites "a broadband amplifier, comprising a splitter operable to be coupled to an input fiber, the splitter splitting an optical signal into at least a first wavelength and a second wavelength. Claim 102 also recites "a first amplifier coupled to the splitter" and "a second amplifier coupled to the splitter, wherein a pump wavelength of the first amplifier is larger than a pump wavelength of the second amplifier."

CONCLUSION

Applicant believes pending Claims 95-97, 99-100, and 102-104 are in condition for allowance. Early and favorable action is respectfully requested for all pending claims.

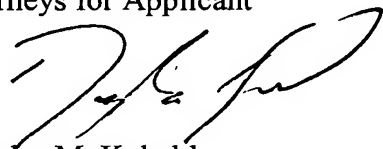
If the Examiner feels that a telephone conference would advance prosecution of this Application in any manner, the Examiner is invited to contact Douglas M. Kubehl, Attorney for Applicant, at the Examiner's convenience at (214) 953-6486.

As stated above, Applicant is filing with this Amendment a Third Supplemental Information Disclosure Statement and has included with that filing a check in the amount of \$180.00 for the fee prescribed by 37 C.F.R. 1.17(p). No other fees are believed due at this time, however, the Commissioner is hereby authorized to charge any additional fees or credit any overpayments to Deposit Account No. 02-0384 of Baker Botts L.L.P.

Respectfully submitted,

BAKER BOTTS L.L.P.

Attorneys for Applicant


Douglas M. Kubehl
Reg. No. 41,915

Date: July 25, 2002

Correspondence Address:

X Customer Number or Bar Code Label



**APPENDIX A
MARKED-UP VERSION OF AMENDED CLAIMS**

Claims 1-94 were previously canceled without prejudice or disclaimer.

[110] 95. (Amended) A method of producing an amplified broadband optical signal, said method comprising:

dividing an optical signal at a predetermined wavelength into a first beam having a wavelength less than the predetermined wavelength and a second beam having a wavelength greater than said predetermined wavelength;

directing said first beam to a Raman amplifier;

directing said second beam to a rare earth doped amplifier; and

combining said first and second beams to produce an amplified broadband optical signal.

[111] 96. (Amended) The method of [producing an amplified broadband signal having a wavelength between 1530 and 1620 nm according to] claim [110] 95, wherein said rare earth doped amplifier is an erbium-doped fiber amplifier.

[112] 97. (Amended) The method of claim [110] 95, wherein the Raman amplifier amplifies and spectrally broadens the first beam and the rare earth doped amplifier amplifies and spectrally broadens the second beam.

Claim 113 has been canceled without prejudice or disclaimer.

[114] 99. (Amended) A broadband amplifier, comprising:

[at least one input fiber;]

a splitter operable to be coupled to [the] an input fiber, the splitter splitting an optical signal into at least a first wavelength and a second wavelength;

one or more Raman amplifiers coupled to the splitter;

one or more rare-earth doped optical amplifiers coupled to the splitter; and

a combiner coupled to the Raman amplifier and the rare-earth doped optical amplifier, the combiner combining [an optical signal into] at least [a] the first wavelength and [a] the second wavelength into an optical signal [; and] for communication to an output fiber operable to be coupled to the combiner.

[115] 100. (Amended) The amplifier of claim [114] 99, wherein the splitter directs the first wavelength to the Raman amplifier and the second wavelength to the rare-earth doped optical amplifier.

Claim 116 has been canceled without prejudice or disclaimer.

[117] 102. (Amended) A broadband amplifier, comprising:

[at least one input fiber;]

a splitter operable to be coupled to an [the] input fiber, the splitter splitting an optical signal into at least a first wavelength and a second wavelength;

a first amplifier coupled to the splitter;

a second amplifier coupled to the splitter, wherein a pump wavelength of the first amplifier is larger than a pump wavelength of the second amplifier; and

a combiner coupled to the first amplifier and the second amplifier, the combiner combining [an optical signal into] at least [a] the first wavelength and [a] the second wavelength into an optical signal [; and] for communication to an output fiber operable to be coupled to the combiner.

[118] 103. (Amended) A broadband amplifier, comprising:

[at least one input fiber;]

a splitter operable to be coupled to [the] an input fiber, the splitter splitting an optical signal into at least a first wavelength and a second wavelength;

a distributed gain medium coupled to the splitter, the distributed gain medium providing gain through a third order non-linearity;

one or more rare-earth doped amplifiers coupled to the splitter; and

a combiner coupled to the distributed gain medium and the rare earth doped optical amplifier, the combiner combining [an optical signal into] at least [a] the first wavelength and [a] the second wavelength into an optical signal [; and] for communication to an output fiber operable to be coupled to the combiner.

[119] 104. (Amended) The amplifier of claim [118] 103, wherein the splitter directs the first wavelength to the distributed gain medium and the second wavelength to the rare earth doped optical amplifier.

Claims 120-158 have been canceled without prejudice or disclaimer.